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FESTO
PNEUMATIC

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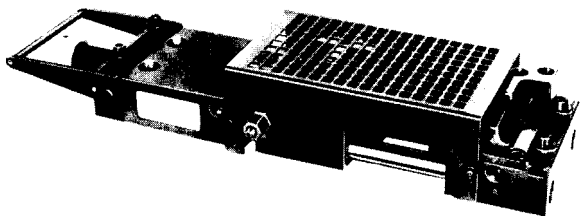


Operating Instructions

for pneumatic feed units
type BV–50– 40, BV-50-100

Application

For short strokes and fast working cycles, e.g. on high-speed presses in mass production in the precision, electrical, and watchmaking industries.

Feed units can be used to push in front of the tool or to pull behind the tool, operating from right to left in each case. Proper functioning is ensured in each mounting position.

Installation

The housing of the feed unit has 4 fastening holes (10) and is attached on the press table with socket head cap screws to the tool or to an attachment angle. It is advisable to attach the unit such that it can be vertically adjusted in order that the strip entry can at all times be adjusted to the tool.

Material adjustment

With strips less than 30 mm wide, it must be ensured that the strip is guided over the centre of the clamping piston (18) and is aligned with the tool centre. A marking groove on the clamping gripper indicates the centre of the clamping plate. The guide rollers (1) are provided for lateral guidance and must be set to the appropriate strip width. Make sure that they run freely. With open clamping grippers, it is possible to transport material which exceeds the width of the feed unit.

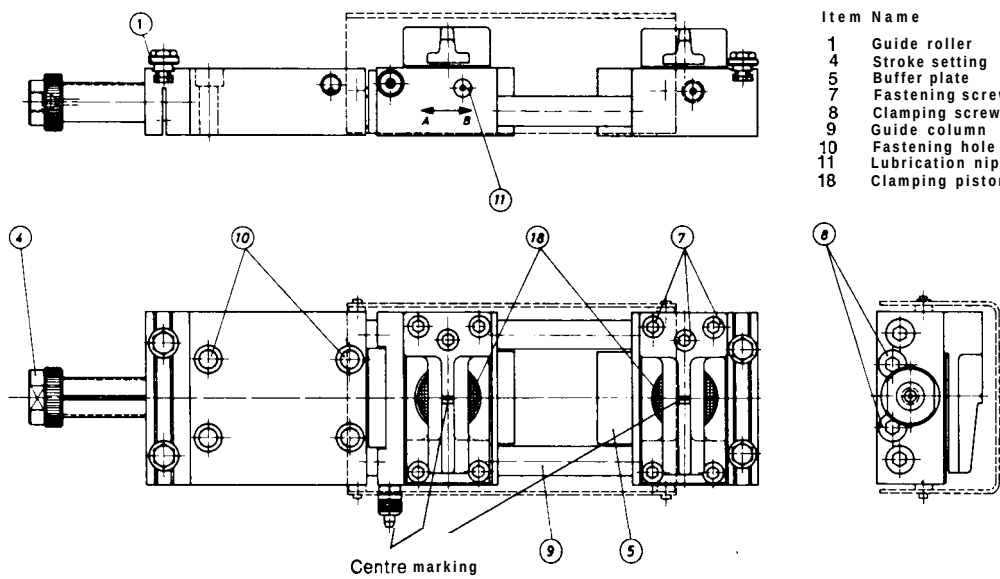
Feed setting

Slacken clamping screws (8), turn set screw (4) until the distance between stop (5) and feed brace corresponds to the desired feed length. Retighten clamping screws.

Insert strip

Close hand slide valve (Figs. 1 and 2, item 22), the unit is now exhausted – insert strip – reopen hand slide valve.

If strip or tape material is to be inserted against the length stop, it is advisable to incorporate a further hand slide valve into line P 1 for exhausting the grippers (Figs. 1 and 2, item 25).



Item	Name
1	Guide roller
4	Stroke setting
5	Buffer plate
7	Fastening screw
8	Clamping screw for stroke setting
9	Guide column
10	Fastening hole
11	Lubrication nipple
18	Clamping piston, replaceable

To obtain the optimum cycling frequency, the control line between valves 20 and 21 should not exceed two metres in the pneumatic control (Fig. I). The control signal for valve 20 can be obtained linearly or rotary as required. With linear pick-up, an adjustable control rail must be mounted on the press ram. With press strokes over 15 mm, only rotary signal pick-up is possible.

In general, the rotary type of signal pick-up is to be preferred. This usually allows one to avoid resetting of the control rail if tools are changed.

With both types of control, the timing of the pulse output for the feed should be selected such that the rams have wiped off and the tape is freely located in the tool. The feed should be completed no later than 30° after upper dead centre.

The solenoid valve (Fig. 2. item 20) obtains its reversal pulse from an electrical limit switch.

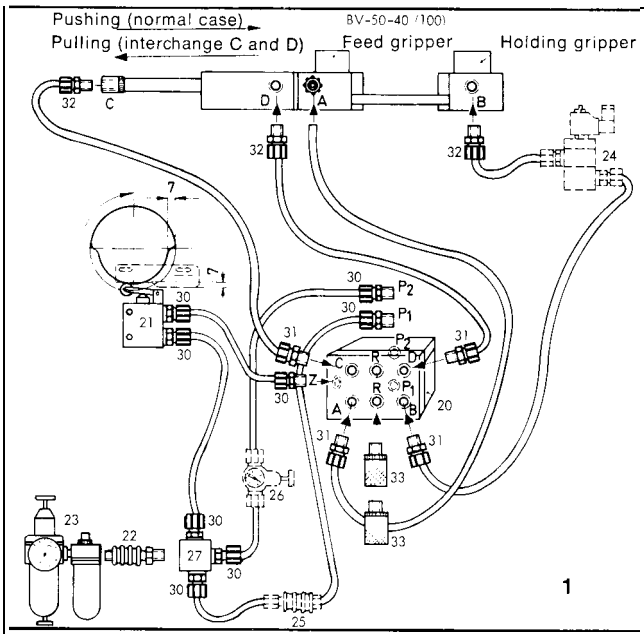
Reverse control (if feed unit is to operate in the opposing direction)

1. Reversal of the feed direction and opposite starting position of the slide: interchange connections C and D.
2. Reversal of feed direction with same starting position of the slide: interchange connections A and B.
3. Reversed starting position of the slide with same feed direction: interchange connections A and B and also C and D on the feed unit housing.

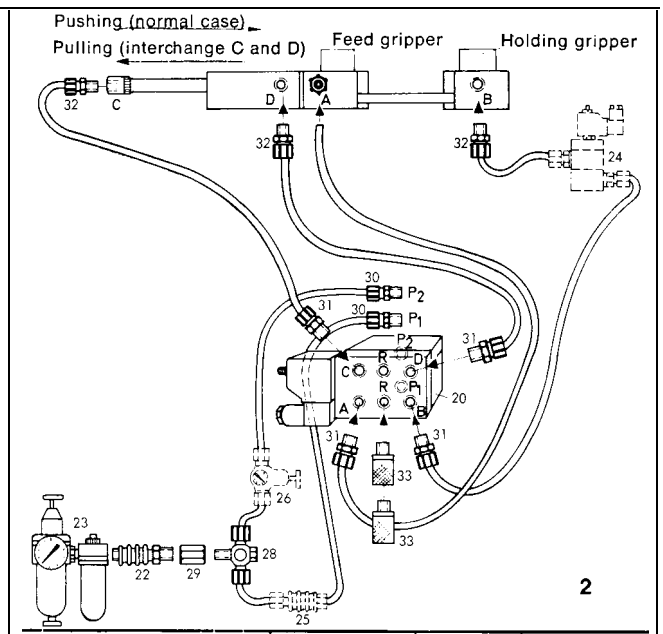
The grippers can be shifted through 180° such that the opening is on the opposite side. To do this, the socket head cap screws (7, front side) must be slackened.

Example:

Pneumatic control



Electro-pneumatic control



Control elements

Item	Name	BV-50-40 (100) Pneumatic control	Electro-pneum. control
20	Air-operated valve solenoid valve	VL-8-3/8-B	MLC-8-3/8-B
21	Roller lever valve	R-3-1/4	
22	Hand slide valve	W-3 1/4	
23	Service unit	FRC-1/4	
24	Solenoid valve	MOC-3-1/4	(only required with intermediate exhaust)
25	Hand slide valve	W-3-1/4	(only with strip or tape material against length stop)
26	Pressure regulator	LR-1/4	(only with low pressure for feed)

Accessories

Item	Name	Type	Quantity Pneum. control	Electro-pneum. control
27	Distributor piece	FR-4-1/4	1	
28	Quick connector	TCK-1/4-PK-6	-	1
29	Socket joint	QM-1/4-1/4		1
30	Quick connector	CK-1/4-PK-6	8	2
31	Quick connector	CK-1/4-PK-4	4	4
32	Quick connector	CK-1/8-PK-4	3	3
33	Silencer	U-1/4	2	2

Tools with catch pins

Where cycling rate and ram stroke permit, it is possible to momentarily exhaust the holding grippers with tools having catch pins (locating pin, pilots). A solenoid valve type MOC–3–1/4 (24) fitted in line B and operated by means of a cam disc and a limit switch exhausts the holding gripper as soon as the catch pin is inserted in order that the strip can be centered.

Maintenance

A service unit type FRC must befitted on the upstream side of the entire control system. With this unit, the compressed air is cleaned, regulated to constant pressure (6 bar), and provided with a fine oil mist for lubricating purposes. The bearing bushes of the feed brace must be lubricated from time to time by means of lubricating nipple (II).

Technical data

Type		BV-50-40	BV-50-100
Material width max.	mm	50	50
Feed (infinitely variable)	mm	0 to 40	0 to 100
Material thickness max.	mm	1.0	1.0
Feed force at 6 bar	N	240	240
Clamping force at 6 bar	N	650	650
Connection		R 1/8	R 1/8
Pressure range	bar	3 to 6	3 to 6
Weight	kg	3.7	4.4

1N ~ 0,1kp

Permissible cross-section diagram

Values for properly flattened material with non-driven reel up to 60 cycles/min. To achieve these values, a driven reel must be used at higher cycling rates.

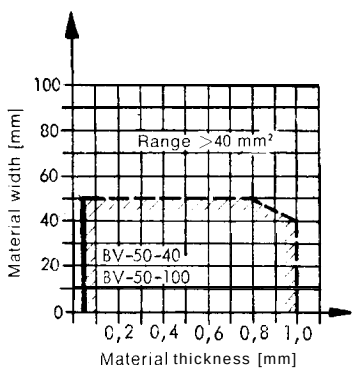
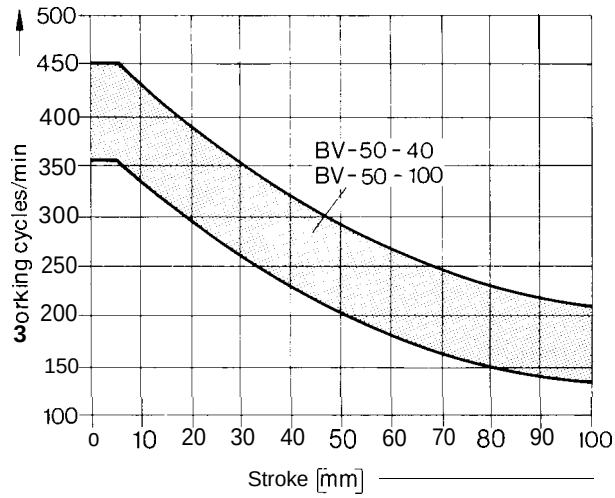
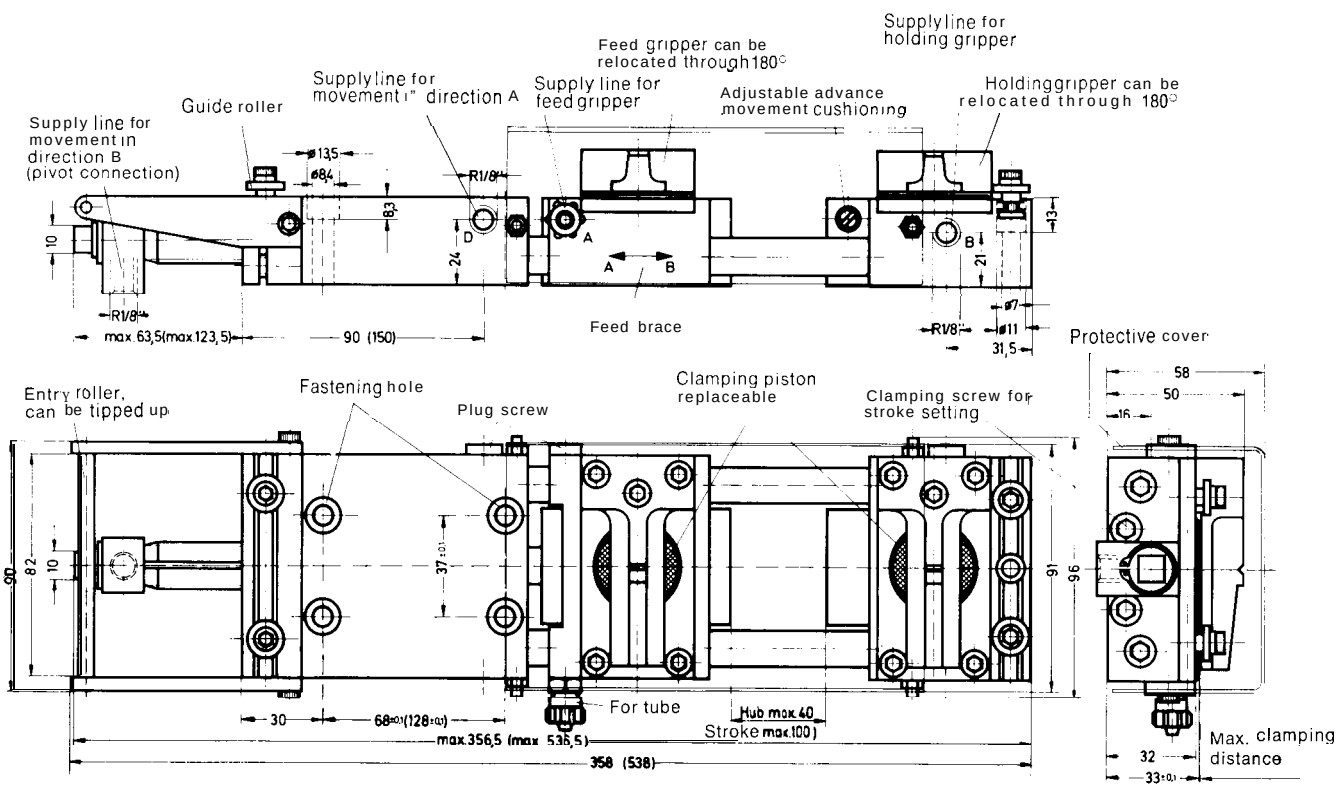


Diagram showing approximate values for max. working cycles/min at 6 bar working and control pressure

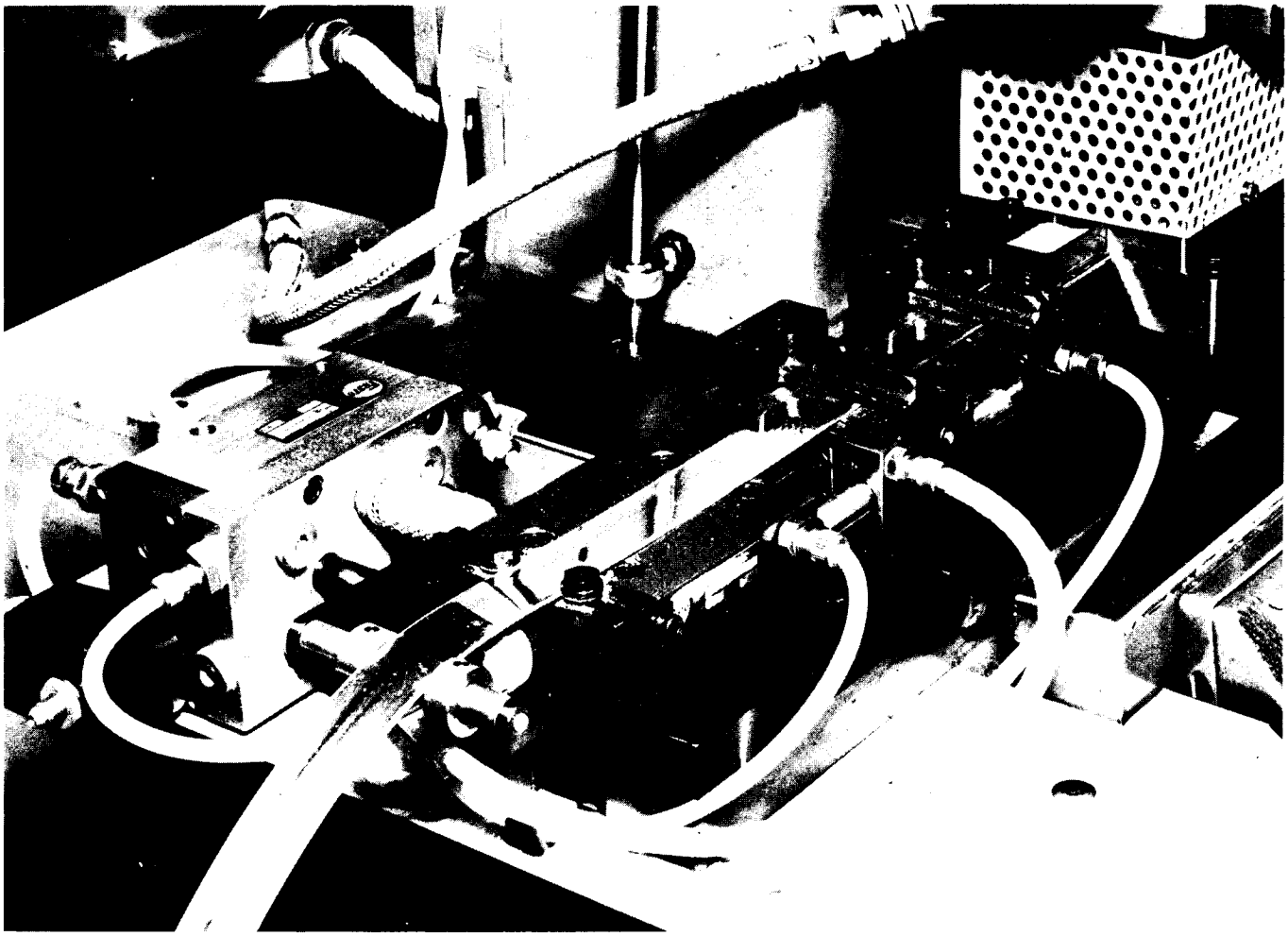


The attainable working cycles/min depend on many factors, mostly stroke and load. In the diagram, the upper range for each type represents the attainable cycling frequency at low load, and the lower range represents the attainable cycling frequency at high load.
To attain the upper limit, time-leading control is advisable.
A fitted advance movement cushioning arrangement allows optimum balancing of stroke, cycle rate, and mass.

Pneumatic feed unit type BV-50-40, BV-50-100 (deviating dimensions in parentheses)


Supply line for holding gripper
Feed gripper can be relocated through 180°
Supply line for movement in direction A
Supply line for feed gripper
Adjustable advance movement cushioning
Holding gripper can be relocated through 180°
Guide roller
Supply line for movement in direction B (pivot connection)
Feed brace
Protective cover
Entry roller, can be tipped up
Fastening hole
Plug screw
Clamping piston replaceable
Clamping screw for stroke setting
For tube
Hub max. 40
Stroke max. 100
max. 63,5 (max. 123,5)
90 (150)
max. 356,5 (max. 536,5)
358 (538)
Max. clamping distance

The information given is liable to modification without notice



Excerpts from the FESTO Pneumatics Product Range

CYLINDERS		AG	AH	AV	AV	EG	EG	DG	DG	DGS	DGW
		DGW	DGW	DO	DH	DF	DV	DS	DVF	DT	DPO
A	V	R	L	HS	HS	J	L	LS	PE-VK	VALVES	
F	GRR	MC	MLC	JMC	VL	VZA	PE	SE	RFL		
ACCESSORIES		FRC	LR	PK	PKB	QM	KK	MK	CV	LCK	TCK
		FCK	CK	C	B	E	G	FR	VT	U	KD
DGM	X	DRF	YD	YZ	YS	XYD	YP	AWP	BL	UNITS	
ZY	ZYZ	HPW	PW	PN	ST	BV	ZW	BS	ZSA		